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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,271	10/04/2001	Akihiko Tanioka	214153US0PCT	1476
22850	7590	04/09/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WINTER, GENTLE E	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/926,271

Applicant(s)

TANIOKA ET AL.

Examiner

Gentle E. Winter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/7/02</u> . | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-11, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 718 352 B1 to Takaaki. “Takaaki”.

2. Claims 1 and Takaaki disclose a styrenic polymer having a syndiotactic configuration (styrene type polymer having high syndiotactic structure), and exhibiting an ion exchange capability (and “metallic salt of organic sulphonic acid.”). See paragraph [0007].

3. As to claims 2 and 8, disclosing that the polyelectrolyte comprises an ion-exchange group-containing thermoplastic resin other than said styrenic polymer having a syndiotactic configuration, and an ion-exchange group-free polystyrenes having a syndiotactic configuration. Since the structure of the reference has a “high” syndiotactic structure, of necessity not all of the structure is syndiotactic. Additionally, the claim language: “ion-exchange group-free” may be susceptible to clarification. As indicated with respect to claim 1, above sulfonic acid is disclosed. Thermoplastic resin is additionally discussed at paragraph [0021] *et seq.*

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4. As to claim 3, further limiting claim 2 and disclosing an ion exchange group-free other thermoplastic resin, the same is disclosed in paragraph [0007] composition” and at paragraph [0021] *et seq.*

5. As to claims 4 and 13, disclosing a thermoplastic resin containing at least an ion-exchange Group--sulfonic group--containing styrenic polymer having a syndiotactic configuration. The same is disclosed in paragraph [0007]. Disclosing a styrene type polymer having high syndiotactic structure, and “metallic salt of organic sulphonic acid.” Thermoplastic resin is additionally discussed at paragraph [0021] *et seq.*

6. As to claim 5, further limiting claim 4, and disclosing that said polyelectrolyte comprises an ion-exchange group-containing styrenic polymer having a syndiotactic configuration, [0007] and an ion-exchange group-free thermoplastic resin [0021] *et seq.*

7. As to claims 6 and 14, disclosing that the polyelectrolyte according to claim 4, wherein said polyelectrolyte comprises an ion-exchange group-containing styrenic polymer having a syndiotactic configuration, and an ion-exchange group-containing thermoplastic resin other than the styrenic polymer having a syndiotactic configuration. In paragraph [0022] atactic polystyrene is disclosed. Paragraphs [0007] and [0017], among others discuss the sulfonic group.

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8. As to claim 7, disclosing that the polyelectrolyte of claim 6, further comprises an ion-exchange group-free thermoplastic resin. Polyester meets the claim limitation and is disclosed in paragraph [0022].

9. As to claim 9, disclosing a polyelectrolyte membrane produced by forming the polyelectrolyte according to claim 1 into a film. A film is disclosed in *inter alia* paragraph [0002] and [0003] and [0007].

10. As to claim 10, further limiting claim 9, and disclosing that the polyelectrolyte membrane has an ion-exchange capacity of 0.65 milli-equivalent/g or more on the basis of weight of dried membrane. The same is disclosed in paragraph [0007] disclosing 0.025 to 6.5% by weight of a salt of an organosulfonic acid. See also paragraph [0017].

11. As to claim 11, disclosing that the polyelectrolyte membrane is produced by forming the polyelectrolyte into a film by a melt-press method or a melt-extrusion method. Since the membrane of Takaaki has the same characteristics of the claimed invention, it is not clear how the method of formation alters the structure. The claimed invention is identical to that of the reference. Applicant may elect to provide evidence that the method imparts some characteristic not found in the reference, via a declaration under 37 CFR 1.132.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takaaki in view of US PGPub 20020102674A1 to Anderson. Each and every limitation of claim 12 is identically disclosed in Takaaki, as set forth above, except Takaaki fails to explicitly disclose that the membrane is part of a fuel cell. Anderson discloses using the membrane in a fuel cell. Anderson provides the explicit motivation for making the claimed combination. Namely, Anderson states at [0150]: "Ion-exchange membranes are used in batteries in part because their electrical conductances are higher than in the silver halides of conventional solid-electrolyte cells."

***Conclusion***

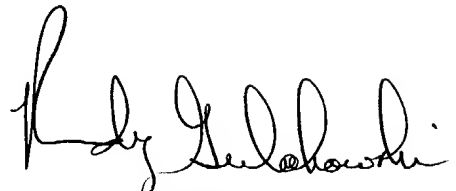
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (571) 272-1310. The examiner can normally be reached on Monday-Friday 7:00-3:30.
4. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

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5. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 273-1310.

Gentle E. Winter  
Examiner  
Art Unit 1746

April 5, 2004



RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700